

## ABSTRACT OF THE DISCLOSURE

An MRI apparatus having a calibration pulse sequence, wherein a group of pulse sequences for applying test gradient magnetic fields are established from a basic pulse sequence by a gradient echo method of short TR, a group of pulse sequences not applying test gradient fields are established from the basic pulse sequence, a set of three-or four-dimensional data including a time variable is created by using echo signals collected by at least one of the groups, two data sets are created as a whole by inverting the polarity of the test gradient magnetic field, the difference between phase images thereof is determined, the magnitude and time constant of eddy current induced at the fall or rise of the gradient magnetic field are determined from the phase difference image, and the variation of the magnetic field due to eddy current induced at the rise and /or fall of the gradient magnetic field can be measured in a relatively short time with a desired time resolution even if the magnetic field variation is of a very long time constant.